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| 09/678,793 | 10/04/2000 | Itaru Kanno | 49657-819 | 6359 |

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| EXAMINER |
|---|
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| 1765 | 14 |

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Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. 09/678,793 | Applicant(s) KANNO ET AL. | |
|---|---|---|---|
| | Examiner Lynette T. Umez-Eronini | Art Unit 1765 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☐ Claim(s) _____ is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-8 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 13 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

2. Claims 1-4 are rejected under 35 U.S.C. 102(a) as being anticipated by Kenta et al. (JP 10319606 A, English computer generated translation).

Kenta teaches a developer that contains water, an alkali material (same as applicant's hydroxide) and a compound having the formula,

$HO\text{-}B_1A\text{-}B_2\text{-}H$ (I) and

$HO\text{-}A_1\text{-}B\text{-}A_2\text{-}H$ (II),

where A, $A_1$ and $A_2$ are a polypropylene oxide (same as oxyethylene (EO) group), are oxide, and B, $B_1$ and $B_2$ are a polyethylene oxide (same as oxopropylene (PO) group, which average molecular weight is 900-4000 [Abstract and 0004, lines 2-8] which is the same as applicant's formula (I), $HO\text{-}((EO)_x\text{-}(PO)_y)_z\text{-}H$ where x and y represent integers satisfying $x/(x+y) = 0.005$ to 0.4 and z represents a positive integer, **as in claim 1**. Since Kenta's developer comprises the same chemical as those of the claimed invention, then using Kenta's developer in the same manner as that of the claimed invention would inherently be perform as a cleaning agent for a semiconductor device as claimed in the present invention.

Kenta teaches, " . . . the alkali matter used by this invention is not limited. For example, a sodium hydroxide, a potassium hydroxide, . . . , Inorganic alkali; ammonia (same as ammonium hydroxide), . . . the fourth class ammonium, such as tetramethylammonium hydroxide . . . [0006], which reads on said hydroxide includes ammonium hydroxide, **as in claim 2** and a hydroxide of potassium and a hydroxide of sodium, **as in claim 3.**

Kenta teaches, PLURONIC®, which is equivalent to formula (II), $HO\text{-}A_1\text{-}B\text{-}A_2\text{-}H$ at 2.38% trimethylammonium hydroxide solution [0021, lines 1-2], which falls within the range of the concentration of said hydroxide contained in said cleaning agent is 0.01 to 31 percent by weight, in **claim 4**.

### *Claim Rejections - 35 USC § 103*

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kenta (JP 606 A) as applied to claim 1 above, and further in view of Nakajima et al. (US 5,715,173).

Takahashi differs in failing to teach the specify the mean molecular weight of the total of said oxypropylene group in said compound expressed in the general formula (I)

or (II) is 5000 to 5000, **in claim 5**; weight ratio of the general formula (I) and/or the general formula (II) to said hydroxide is (0.3 $x10^{-4}$ to 1):1, **in claim 6** and wherein the pH of said cleaning agent is at least 8, **in claim 7**. It is noted that the molecular weight and weight ratio are related to the concentration. It is well know in the art that concentration is generally expressed in term of amount (i.e. moles, grams, molecular weight) per volume of solution and the pH is defined as $-\log[H^+]$, which is also measure of concentration.

Nakajima teaches, "The concentration of the cleaning solution is variable . . . " which provides evidence that the concentration of the cleaning solution is a so-called "result effective variable."

It is the examiner's position that it would have been obvious to one having ordinary skill in the art at the time of the claimed invention to modify Kenta by varying the concentration of the cleaning solution, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.21d 272, 205 USPQ 215 (CCPA 1980).

5. Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kenta (JP '606 A) as applied to claim 1 above, and further in view in view of in view of Yasuo et al. (computer generated English translation of JP 06013364 A) and Nakajima (US '173).

Kenta differs in failing to teach the cleaning agent further containing hydrogen peroxide.

Yasuo teaches a cleaning solution for semiconductor devices containing beyond 1 wt % [0008 and claim 1], which is effective in washing dust, metal impurity, silicon wafer and a semiconductor device [0004].

It is the examiner's position that it would have been obvious to one having ordinary skill in the art at the time of the claimed invention to modify Kenta by adding hydrogen peroxide to a cleaning solution as taught by Yasuo for the purpose of removing efficiently removing dust on a silicon wafer [Yasuo, 0004].

Kenta in view of Yasuo differs in failing to teach the cleaning agent further containing not more than 1 percent by weight of hydrogen peroxide.

Nakajima teaches, "The concentration of the cleaning solution is variable . . . " which provides evidence that the concentration of the cleaning solution is a so-called "result effective variable."

It is the examiner's position that it would have been obvious to one having ordinary skill in the art at the time of the claimed invention to modify Kenta in view of Yasuo by varying the concentration of the cleaning solution, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.21d 272, 205 USPQ 215 (CCPA 1980).

***Double Patenting***

6. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11

F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

7. Claims 1-7 are rejected under the judicially created doctrine of double patenting over claims 1, 3, 4, 5, and 9 of U. S. Patent No. 6,472,357 B2 since the claims, if allowed, would improperly extend the "right to exclude" already granted in the patent.

The subject matter claimed in the instant application is fully disclosed in the patent and is covered by the patent since the patent and the application are claiming common subject matter, as follows:

Instant **claim 1**, comprises a cleaning containing a hydroxide, water and a compound expressed in the following general formula (I) and/ or the following general formula (II):

$$HO\text{-}((EO)_x\text{-}(PO)_y)_z\text{-}H \qquad (I)$$

where EO represents an oxyethylene group and PO represents an oxypropylene group, x and y represent integers satisfying $x/(x + y) = 0.05$ to 0.4, and z represents a positive integer, for example and

$$R\text{-}[((EO)_x\text{-}(PO)_y)_z\text{-}H]_m \qquad (II)$$

where EO, PO, x, y, and z are defined identically to EO, PO, x, y, and z in the general formula (I), R represents a residue of alcohol or amine excluding a hydroxyl

group or a hydrogen atom of an amino group, and m represents an integer of at least 1. Although the conflicting claims are not identical, they are not patentably distinct from each other since the instant claim 1 discloses a cleaning agent, which comprises the same chemicals as those of the electronic parts cleaning solution in claim 1 of US 6,472, 357 B2, hence, it would have been obvious to one of ordinary skill in the art that by using the electronic cleaning solution of '357 B2 in the same manner as that of the instant invention would obvious result in a cleaning agent for a semiconductor device containing the formulation as recited in the instant claim 1.

In instant **claims 2 and 3**, the cleaning agent includes hydroxide such as ammonium, tetramethylammonium, potassium and sodium hydroxide and are the same as the hydroxides of the electronic parts cleaning solution in claim 3 of US '357 B2.

In instant **claims 4 and 6**, the concentration of said hydroxide contained in said cleaning agent is 0.01 percent by weight to 31 percent by weight and the weight ratio of the general formula (I) or (II)) to hydroxide is from $0.3 \times 10^{-4}$ to 1, are respectively the same as those of the cleaning solution in claims 4 and 5 of US '357 B2.

In instant **claim 7**, the pH of said cleaning agent is at least 8, encompasses the pH of the cleaning solution that is 8 or more as in claim 9 of US '357 B2.

Instant **claim 5** recites the mean molecular weight of the total of said oxypropylene group in said compound expressed in formula (I) or (II) is 500 to 5000. Although the conflicting claims are not identical, they are not patentably distinct from each other since formulas (I) and (II) and the hydroxide of the instant claim 5 comprise the same chemicals as those of the cleaning solution in claim 1 of US '357, then it

would be obvious that using the cleaning solution of US '357 in the same manner as that of the claimed invention would result in oxypropylene having the same molecular weight and same weight ratio as that of instant **claim 5**.

Furthermore, there is no apparent reason why applicant was prevented from presenting claims corresponding to those of the instant application during prosecution of the application, which matured into a patent. See *In re Schneller*, 397 F.2d 350, 158 USPQ 210 (CCPA 1968). See also MPEP § 804.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynette T. Umez-Eronini whose telephone number is 703-306-9074. The examiner is normally unavailable reached on the First Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Benjamin Utech can be reached on 703-308-3836. The fax phone numbers for the organization where this application or proceeding is assigned are 703-972-9310 for regular communications and 703-972-9311 for After Final communications.

ltue
June 14, 2003

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